

Digital Arts and Humanities Working Group

2011-2012 Report

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Executive Summary

The Digital Arts & Humanities (DAH) Working Group of the Research Support Services Collaborative was formed to investigate and recommend a coherent strategy for support of emerging digital arts and humanities scholarship on campus. Acknowledging the depth of expertise required for support of such scholarship and the distribution of expertise and support opportunities across the University of Minnesota, the working group is composed of library staff from multiple departments and representatives from the Office of Information Technology (OIT) and the College of Liberal Arts Office of Information Technology (CLA-OIT).

In this first year, the working group had an investigative focus, gaining more information about the

larger digital humanities community, local digital humanities initiatives and interest, tools and resources available for digital humanities work, and available support models. Defining digital arts and humanities within a local context has been a challenge due to the emerging nature of research in this field on campus. As evidenced by attendance at Digital Humanities 2.0 events, there is interest in digital arts and humanities in many departments, such as Art, Art History, Computer Science, Cultural Studies & Comparative Literature, English, Geography, History, Writing Studies, Theatre Arts and Dance. There is expressed interest in spatial history, analysis of new media, social computing and crowdsourcing, and visualization. There are many more scholars interested in exploring digital arts and humanities than are currently working in this area. As a result, it is not clear that a particular “flavor” of digital arts and humanities is dominant on campus at this point in time.

Interviews and surveys of local faculty interested in digital arts and humanities suggests that scholars are only beginning to think of themselves as digital humanists. Interview and survey participants identified networking and technology support as key challenges they face in pursuing digital arts and humanities work. Other top challenges included funding and institutional support. In response to a question about support needs, survey participants emphasized a need for help with technology, funding, tool, and staff support. Interview and survey participants noted that they receive assistance from the Office of Information Technology, CLA-OIT, the University Libraries, SMART Commons, home departments, and external communities (open source communities, professional societies, digital humanities and computational linguist communities). In the interviews, several participants noted how difficult it can be to find assistance in this work given the size of the institution and distributed nature of support at the University of Minnesota. While participants did not explicitly cite data curation as a need for work in DAH, the survey responses indicate a clear need for support in this area to better ensure long-term access to research materials.

The working group discussed at length the strengths of university entities to support these expressed needs. The Libraries and OIT have many strengths that address the need for connection, partnership-building, and service referral. In his talk, Dan Cohen noted that libraries are particularly neutral (i.e., discipline-independent) institutions that can work across the university and may be particularly well-situated to support digital humanities research and scholarship; on this campus, central OIT has a similar neutral status. The Libraries and OIT are highly service-oriented and collegial. Both entities have a wealth of expertise in training and instructor support, which will help to meet scholar training needs in technology, metadata, copyright, and data management; both also provide substantial infrastructure options for DAH scholarship in the form of technology infrastructure and content support. At the same time it will be critical to partner with the wide array of technology-oriented services on campus for effective DAH support. These services are highly decentralized on the University of Minnesota campus, and scholars would benefit from greater coordination between these services.

Considering the strengths of organizations on campus and the most pressing support needs of emerging digital arts and digital humanities scholars at the University of Minnesota, the working

group developed a set of near-term and longer-term recommendations.

Recommendations in brief

The recommendations center around opportunities for developing local partnerships and a local DAH community, coordinating support services, developing and promoting infrastructure and support for DAH scholarships, and exploring data curation needs. Expanded information and rationale for the recommendations are included in the full section of the report.

Near-term Recommendations

- Identify potential partners and current support entities for digital scholarship, both on campus and in the region.
- Host a tech/media/publishing summit to identify where DAH and new media creation is supported, bringing together the creation/infrastructure players.
- Communicate with Digital Humanities 2.0 Collaborative leaders to coordinate workshops and support for the coming year.
- Invite a DAH graduate student or faculty member to join the DAH working group.
- Host or co-host a Tech Showcase or panel of example DAH projects and support services.
- Hire a Digital Arts and Humanities librarian (minimum 50% FTE) in the next 12 months in order to continue momentum on campus and in the University Libraries to advance and support DAH.
- Work more closely with the Data Management, Access, and Archiving Working Group (DAWG) and other partners (such as OIT, the Institute for Advanced Studies, and UMN Press) to further explore and plan infrastructure and services for data curation, publishing, and preservation within the Libraries, the University of Minnesota, and the CIC.
- Develop a proposal for a grant-funded project to support faculty seed projects, in order to explore data curation and access issues in DAH, deepen campus expertise with DAH, and develop project workflows.
- Work with the incoming Associate University Librarian for Content and Collections to make DAH collections, content, and publishing a priority area.
- Develop a DAH or Digital Scholarship brand to clarify and promote support services for research in these areas.

Longer Term Efforts

- Build on earlier investigations of existing campus support and early DAH summits to clarify support paths through partnership arrangements or develop a formalized DAH support team with members drawn from the Libraries, OIT, IAS, and other logical partners.
- As DAH scholarship develops on campus, continue to coordinate support centers already in existence and plan for new ones together.
- The Libraries should pursue licensing conditions that allow text mining in order to support

DAH work employing this practice.

- The Libraries should begin to use the collections budget to build access to source materials for DAH projects.
- Build APIs for local collections and consortial collections.
- Host a seminar series (virtual or in-person) in partnership with the Digital Humanities 2.0 group
- Create a structured, ongoing set of workshops specifically branded as supporting DAH and digital scholarship.
- Develop a linked and branded DAH consultative service to address researcher needs through direct service and partner referrals.
- Develop digital tools and guides to support DAH scholars.
- Develop a Digital Teaching and Workshop program to incorporate DAH into teaching practice and curricula.
- Explore DAH collaboratory space (virtual or physical) as a future support initiative.

“Digital humanities is not just about individual scholars using computers in their research. It represents a potentially transformative change across all the ways we work as academics: from the questions we ask, to the kinds of people we work with; from the ways we communicate knowledge to our peers and our students, to the ways we relate to the world beyond the University.”

- Robert C. Allen, University of North Carolina at Chapel Hill

Background and Overview

The Digital Arts & Humanities (DAH) Working Group of the Research Support Services Collaborative was formed to investigate and recommend a coherent strategy for support of emerging digital arts and humanities scholarship on campus. Acknowledging the depth of expertise required for support of such scholarship and the distribution of expertise and support opportunities across the University of Minnesota, the working group is composed of library staff from multiple departments and representatives from the Office of Information Technology (OIT) and the College of Liberal Arts Office of Information Technology (CLA-OIT). First-year members of the working group included Kate Brooks (co-chair), Jennie Burroughs (co-chair), Laura Dale Bischof, Deborah Boudewyns, Chiat Naun Chew, Cecily Marcus, Lauren Marsh, Jen Mein, Rebecca Moss, Jason Roy, and Scott Spicer. These members collectively brought expertise in consultative relationships, metadata, digital projects, research content, media support, progressive pedagogy, and much more.

In this first year, the working group had an investigative focus, gaining more information about the larger digital humanities community, local digital humanities initiatives and interest, tools and resources available for digital humanities work, and available support models. The group also began to situate the University Libraries as a partner in the emerging discussion around digital arts & humanities through conversations with stakeholders, interviews and surveys, and hosting related events.

This report summarizes key findings about the emerging digital arts and humanities discipline, analysis of support trends, and an investigation of local research interests and support capabilities. The working group makes near-term and longer-term recommendations for projects based on existing and projected user needs.

Definition of Digital Humanities

One of the first-year goals of the working group was to develop a definition of digital arts and

humanities that is informed by present scholarship and creative endeavors on campus. In practice, this has been difficult to define. In her November 2011 talk for the Institute for Advanced Studies Digital Humanities 2.0 group, George Oates gave a simple definition of digital humanities: “Humans understanding humans through the aid of computers.” Kathleen Fitzpatrick defines digital humanities as “a nexus of fields within which scholars use computing technologies to investigate the kinds of questions that are traditional to the humanities, or, as is more true of my own work, ask traditional kinds of humanities-oriented questions about computing technologies.” This begins to describe the range of inquiry present in the digital humanities discipline. Digital humanities encompasses many methodologies, necessitates interdisciplinary research partnerships, and draws on resources and practices that are new to the humanities.

Defining digital arts and humanities within a local context has been a challenge due to the emerging nature of research in this field on campus. As evidenced by attendance at Digital Humanities 2.0 events, there is interest in digital arts and humanities in many departments, such as Art, Art History, Computer Science, Cultural Studies & Comparative Literature, English, Geography, History, Writing Studies, Theatre Arts and Dance. There is expressed interest in spatial history, analysis of new media, social computing and crowdsourcing, and visualization. There are many more scholars interested in exploring digital arts and humanities than are currently working in this area. As a result, the general definitions are appropriate, but it is not clear that a particular “flavor” of digital arts and humanities is dominant on campus at this point in time. This creates challenges for developing effective services.

Overview of DAH Scholarship and Support

This section presents an overview of digital arts and humanities scholarship and support practices evident in the field at large. This is intended to summarize what the working group has learned from a year of review and identify best practices that can help to shape local support practices moving forward as research develops in DAH on campus.

Methodologies

The DAH working group spent this past winter in part exploring methodologies being actively incorporated into current projects and scholarship. While certainly not exhaustive, the following provides a few good examples of the ways in which scholars are engaging in this new technology-intensive environment and offers indications of support needs for scholars employing these methodologies. The Arts-humanities.net site (<http://www.arts-humanities.net/ictguides/methods>) provides a more granular view of methods employed in DAH research.

Spatial history

The notion of affixing information to physical space has been at the forefront of many humanities disciplines of the past several years. The ability to layer data points--documents, images, statistical data--upon a geographical plane has helped scholars to develop a deeper and fuller understanding and representation of a particular concept. An example of this sort of work has emerged out of the Minnesota Historical Society and its work in creating True North: Mapping Minnesota's History (<http://www.mngeo.state.mn.us/ghol/>), which uses geography and GIS technologies to support curriculum development in support of the state of Minnesota's existing graduation standards.

The products of spatial history work can take the shape of interactive maps, custom mapping applications, and visualizations. A related area of digital humanities work explored by the archaeology community and others involves using 3D visualization and immersion technology for spatial and situated analysis. A local example of this work can be found in the Visualizing Ancient Greek Rhetoric projects (http://ivlab.cs.umn.edu/project_virtclassics.php).

Text mining

Arts-humanities.net (http://arts-humanities.net/ictguides/methods#Data_analysis) defines data mining as "the process of using computing power to extract hidden patterns from data, analysing the results from different perspectives and summarising it into a useful format, such as a graph or table." Text mining employs a corpus of text as the data set for lexical and pattern analysis. This method of DAH research is well established in the fields of linguistics, philology, and literary analysis and demonstrates how the use of technology can enable efficiencies in a scholar's research efforts.

Related to this is "distant reading" or "macroanalysis," which turns the classic "close reading" approach to literary analysis on its head. Instead of closely reading texts one at a time to identify characteristics, themes, and trends, distant reading employs quantitative analysis of a larger set of texts to identify themes, frequencies, and other shared characteristics difficult to discern unaided by computers. Some projects in employing this approach involve extensive text encoding, often using the Text Encoding Initiative (TEI) standard.

An example of a corpus developed to support such analysis is the Victorian Women Writers Project (<http://webapp1.dlib.indiana.edu/vwwp/welcome.do>) housed at Indiana University. This site allows for distant reading of textual materials which have been painstakingly TEI encoded. It is a labor-intensive process and stands out as a point of difference from other textual projects that principally deliver image surrogates of the original text page.

Automated visual analysis

Visual analysis is an interesting and emerging area of digital humanities scholarship which looks to leverage computational efficiencies for visual works in much the same way that scholars have employed technology to support textual data analysis. A fascinating project emerging out of the University of Illinois' Images Spatial Data Analysis Group (ISDA; <http://isda.ncsa.uiuc.edu/DID/>)

aims to apply, algorithmically, an image analysis methodology to a large volume of scanned materials in order to ascribe authorship of said materials. The aim is to determine if technology can be leveraged to more efficiently and effectively answer questions posed by humanities researchers.

Analysis of new media/social media

Another facet of DAH work is the investigation of the effects of technology on writing, rhetoric, and social interaction. This work may also involve scholars using technology to directly engage an external community in the advancement of digital scholarship and knowledge gathering. Common to DAH work in general, this has turned on its head the notion of scholar as a lone researcher. In its place is the notion of scholar as community organizer and activist, encouraging a broad community of engaged “assistants” in the collecting and sharing of information. One particular example is the September 11 Digital Archive (<http://911digitalarchive.org/>), a site whose aim was to collect and preserve the history of 9/11 and its immediate aftermath. When first launched, the site contained no content, no documents, no images, merely a framework and online space in which to engage a community. It was up to the larger community to populate the site, to share their stories, their images, their accounts with the rest of the world.

Key Tools and Support Initiatives

The methodologies described in the previous section are made possible by tools designed to work with the relevant types of content, often in novel and potentially transformative ways. They support a range of activities from text analysis and data visualization (e.g. Project MONK) to exhibit hosting (Omeka) to crowdsourcing (Scripto). The development of tools is itself a significant focus of digital humanities activity, with projects like SEASR having a high profile within the community.

An important characteristic of current tools is their open nature. Many projects offer their code on an open source basis, follow a collaborative development model, and aim to provide tools that can interoperate with other tools and be reused with different collections of data. Two trends should be mentioned in particular because of their implications for libraries as both consumers and providers of content and services. The first is the use of APIs to facilitate sharing of data and services among systems. The second is the growing use by such systems of shared aggregations of data, and especially the growing interest in linked open data.

There are many tools available to support DAH research and scholarship. The Bamboo DiRT page (<http://dirt.projectbamboo.org/>) brings those resources together and provides a registry of tools of interest to digital scholars, ranging from “content management systems to music OCR, statistical analysis packages to mindmapping software.”

Bamboo DiRT is part of Project Bamboo (<http://www.projectbamboo.org/>), a multi-institutional initiative that aims to “advance arts and humanities research through the development of shared technology services.” Project partners are building research applications and shared

infrastructure with a current emphasis on collections interoperability, “web-based applications for research across multiple and dispersed corpora,” and incorporating applications into a shared services platform.

The HathiTrust Research Center (HTRC; <http://www.hathitrust.org/htrc>) is assisting scholars with “non-consumptive” access to records, objects, and text contained in the HathiTrust Digital Library. This model allows “scholars to fully utilize content of the HathiTrust Library while preventing intellectual property misuse within the confines of current U.S. copyright law.” The center and access environment facilitates text mining, macroanalysis, and other DAH analysis. HTRC is developing software tools and cyberinfrastructure “to enable advanced computational access to the growing digital record of human knowledge.”

Best Practices in the Field

In order to build contextual knowledge of digital arts and digital humanities work and examine models of support for this work, the DAH Group reviewed general characteristics of leading Digital Humanities Centers, both physical and virtual, in the US and internationally. The group surveyed 17 centers, which were chosen based on research and the working group’s collective knowledge of where important inroads were being made in the field. For each center, group members reviewed websites and, when appropriate, followed up with a more focused look at specific projects or aspects of the center’s organization. Of each center we inventoried the following aspects:

- Administrative home of the center (in the library, in an academic department, as a separate entity)
- Curricular integration--does the university or center offer a related certificate or degree in digital arts or digital humanities?
- Central audience of the center
- Services offered
- Orientation of center--support or presentation of projects
- Tools offered and supported
- Availability of data/text sources on website
- Financial sustainability: granting or funding bodies referenced

We tracked the findings in a mind map that presents a spectrum of support options for digital arts and humanities work (Appendix A). More detailed findings about each of the aspects are discussed below.

Generally, the primary emphasis of the greatest number of DH Centers is the support for specific projects, usually by faculty. The center may serve as an online platform for the web hosting/online display for projects, as well.

Organizational/Administrative Home

Most centers are affiliated directly with academic departments or are independent. George Mason Center for History and New Media is affiliated with the History department, for example, as are University College of London and University of Illinois. Indiana University, Stanford Literary Lab, and UVA are examples of centers not formally affiliated with a specific discipline. Some are housed within the university's library, such as University of Wisconsin and University of Richmond. There are numerous institutions that have multiple instances of support--such as University of Wisconsin, Stanford, and others--where different efforts are housed in different parts of the university.

Teaching and Learning

There are few degree programs in the digital humanities in the United States, though Wisconsin does offer a Digital Studies certificate (<http://digitalstudies.wisc.edu/>) and UVA has a masters in Digital Humanities (<http://www.iath.virginia.edu/hcs/MDST.MA.html>). UCLA's Center for Digital Humanities (<http://www.cdh.ucla.edu/>) offers an undergraduate degree and a graduate certificate. These programs are often highly interdisciplinary, even if they are housed in a core department such as an English department.

Some universities that do not offer a degree or certificate-bearing program will offer robust course offerings within a department or across multiple departments, such as George Mason University, Stanford, University of Illinois at Urbana-Champaign, and the Indiana University.

Digital humanities centers also support professional development and less formalized learning opportunities. That Camp, "an open, inexpensive meeting where humanists and technologists of all skill levels learn and build together in sessions proposed on the spot," is now run out of George Mason's Center for History and New Media. This is a source of training for students, scholars, and support staff from all over the world, offering "un-conferences" nearly every week of the year nationally and internationally and focusing on various aspects of digital humanities work.

The University of Nebraska Center for Digital Research in the Humanities (CDRH: <http://cdrh.unl.edu/>) offers workshops and lectures, sponsors research projects and fellowships (including a library-hosted post doc fellowship), and provides a lot of information about how undergraduate and graduate students can get involved with digital humanities projects. It's also notable that Nebraska has done significant work suggesting promotion & tenure criteria for assessing digital research and the humanities (http://cdrh.unl.edu/articles/promotion_and_tenure.php).

The Digital Humanities Summer Institute at the University of Victoria (<http://www.dhsi.org/>) offers a number of courses that address tools and methods related to digital humanities work, such as:

- Design for Visual, Auditory, and Interactive Electronic Environments
- Geographical Information Systems in the Digital Humanities
- Physical Computing and Desktop Fabrication for Humanists
- Digital Pedagogy in the Humanities
- Creating Digital Humanities Projects for the Mobile Environment
- Designing RESTful APIs (Application Programming Interfaces)
- Digital Humanities Databases
- Augmented Reality: An Introduction

Tool Development

Few institutions are systematically investing in tool development, at least through the guise of a digital humanities rubric. George Mason's CHNM is an exception, with robust and heavily adopted tools such as Zotero (bibliographic citation management and more) and Omeka (exhibit hosting), among others. Hathi Trust is also supporting various tools (http://www.hathitrust.org/htrc_collections_tools), and several institutions are developing research applications and shared infrastructure through Project Bamboo (<http://www.projectbamboo.org/>). Rhizome.org, focused on digital arts, has a rich set of resources listed on its site that detail international opportunities in the area of digital arts (<http://rhizome.org/>). The Emory University Digital Scholarship Commons (DiSC) provides services and tools to address needs such as electronic text encoding, geographic information systems (GIS), statistical analysis, scanning, and graphics (<http://web.library.emory.edu/disc>).

Project Support and Services

More often than tool development, many digital arts and humanities centers are in the business of providing web-hosting services for projects or collections of related projects. Project support may range from web hosting, metadata support, grant development, software support, hardware, to long term preservation. UVA, for example, is involved in nearly all aspects of a project's life, from idea to implementation to sustainability, offering services such as project planning, providing software (including XML editing and publishing software, imaging, rendering, and 3D modeling software), an anonymous ftp site, internet servers and servlet engines, and e-mail discussion groups.

Many of the projects displayed on DH center sites, however, are not full representations of a research project. They are often summaries (e.g., Emory, <http://web.library.emory.edu/disc/projects/commonwealth-postcolonial-studies-community>). George Mason offers more robust information, but projects are presentation-oriented. Few sites provide access to the data sets or research materials used for the project, for example. This is in keeping with humanistic practice but makes successive use and shared use of data sources and corpora difficult.

Community Support/Physical Space

There are multiple models for community support for DAH. Some institutions have multiple spaces and groups for different audiences and intents. For example, at the University of Wisconsin, Madison, a number of spaces and fora have been established:

- [College Library Media Studio](#), enabling collaborative, media-rich learning experiences with a hybrid studio/lab environment and support services
- [Working Group for Digital Inquiry](#), exploring and developing quantitative approaches to arts and humanities research
- [Digital Salon](#) showcasing the digital arts and humanities at UW-Madison
- [DesignLab](#), a new digital composition center providing students advanced design consultancy in new media forms, recently funded by the Madison Initiative for Undergraduates
- [Digital Studies](#), a new undergraduate certificate program, recently funded by the Madison Initiative for Undergraduates
- [Faculty Development Seminar](#) in Digital Humanities, examining new media studies and practice, as well as digital inquiry and teaching, while also identifying needs, resources, and collaborative links

Many institutions provide physical space for students and faculty, such as Emory, George Mason, Stanford, University of Richmond. Salon spaces or discussion events are also popular, as are online environments showcasing project work, events, and other aspects of digital humanities scholarship.

Sustainability

Most centers are funded through a combination of centrally administered university funds, grant funds, and at times, private donations.

SPEC Kit 326

SPEC Kit 326: Digital Humanities, distributed by the Association of Research Libraries, was released in November 2011. This SPEC Kit examined support services provided by libraries for digital humanities at a number of institutions. In addition to noting types of support and services, the report describes trends in support levels (e.g., the number of dedicated and ad hoc support staff for digital humanities work). The support services offered by over 70% of libraries responding to the ARL survey included:

- Initial project development consultations

- Digital project management
- Website development
- Data conversion
- Software coding and development
- Digital asset preservation and access

Dedicated spaces for digital humanities work receive attention in the news, but the report indicates that the majority of responding libraries do not have dedicated space for digital humanities work and that this work happens largely in staff offices and in informal spaces like coffee shops. Support for this new area of work comes from a variety of sources, but the most prevalent are library operating budgets and grants. It's useful to note that the majority of responding institutions (75%) report partnering with other units at their institutions to provide digital humanities services, indicating that a distributed model of support is common.

Advice of Experts

The working group dug deeper into support models through conversations with Dan Cohen (director of the Roy Rosenzweig Center for History and New Media at George Mason University) and Harriett Green (Digital Humanities Librarian at the University of Illinois at Urbana-Champaign). Cohen and Green provided some great insight into their own Centers, how they came to be, the value of their programs, the tools and projects they support, and the services they offer within their institutional/organizational contexts. Both institutions have more established work in DAH and, consequently, more developed support structures. Their cases provide insights as to how a concentrated, grant-funded center operates (with attendant strengths and weaknesses) and how a distributed model of support can work.

In his talk to University Libraries staff, Dan Cohen described the work of the Center for History and New Media (CHNM). Initially, much of the CHNM budget has been derived from grant funding (i.e., "soft money"). Cohen indicated this is changing to permanent-line institutional support. Cohen noted the large cost to relying on grant funding in terms of staff time and energy dedicated to grant writing, tracking business lines, and personnel management. CHNM employs a cadre of graduate students and staff, most of whom are tech savvy and studied in the humanities.

All projects are like virtual companies that come together and then dissolve. Planning and budgeting are developed and then a team is assembled to get it done. Most staff work on multiple projects at once. Sometimes ideas are too early for their time, and project ideas must align with funding.

Cohen noted that departments have different cultures, but the library is a neutral zone. Organizing digital humanities work through the library could be a good way to reduce departmental competition. Faculty are at sea with DH work and could use these central

partnerships. Libraries have resources (access to collections and equipment) and people who can offer advice on a variety of topics, such as genres of new media, publishing avenues, copyright, licensing, and preservation.

In her presentation to Libraries staff, Harriett Green talked about the advantage of libraries as ideal partners for the digital humanities process. Libraries provide key spaces, such as media commons, digitization hubs, and multi-center interdisciplinary spaces (i.e., scholars commons). In addition, Green suggests libraries are ideal partners for DAH because they have centralized cross-disciplinary access and expertise for projects, are able to set standards, manage digital collections, provide data preservation and access services, and offer content discovery and search expertise. Green suggested using a cyberinfrastructure model of service support, such as providing expertise in best practices, standards development, and coordinating collaborations. Additionally, Green suggested that collaboratives brings together scholars, information professionals, and technologists in a virtual sharing environment to interact with colleagues and gain access to digital libraries.

Describing support for DAH at UIUC, Green noted that the library has an ad hoc team with specific DAH hires and related experts: an English and Digital Librarian, a DH Specialist, a Digital Preservation Coordinator, a Media Preservation Coordinator, a GIS/Data Services Librarian, a Biomedical Sciences Librarian, and a Life Sciences Librarian. Individuals in this group advise students on DH projects, GIS, image manipulation, digitization, web content, and copyright. UIUC serves DAH scholars through a distributed model and a referral system. One element of service and support is the Digital Scholarly Commons space that opened in fall 2010. The commons houses library and campus experts and provides consultation services on data, statistical tools, GIS, image manipulation, digitization, web content, copyright, and support for IDEALS, the institutional repository. The researcher work flow at UIUC begins with a Library consultation, and scholars may be referred to ICHASS for additional consultation and intensive computing support. The Library also partners with educational technology services for the College of Liberal Arts & Sciences and with interdisciplinary centers, such as the Illinois Center for Research in the Humanities.

UIUC designed the DAH support services and Digital Scholarly Commons based on anticipated needs and the expertise in the Libraries. Libraries typically have strong relationships with teaching faculty, research faculty, and the humanities community on campus. Building on traditional relationships of resource finding expertise, librarians must reach out to communicate their willingness and ability to help on projects and promote emergent Libraries expertise (e.g., copyright, GIS, computational tools), and librarians should find new ways to bring the Libraries *into* research projects. Green noted that librarians can further build faculty/librarian relationships through individual grassroots outreach, building networks based on what scholarship is taking place, going to research initiatives, and debriefing people who went to the DH colloquia. Green pointed to several DH centers with strong library ties as additional models, most notably Maryland Institute for Technology in the Humanities (MITH) and Nebraska Center for Digital Research and Humanities.

Local Trends in Digital Arts and Humanities Scholarship

In spring 2012 the DAH Working Group members began conducting in-person interviews with a select number of faculty and staff, across the campus, that are working on DAH projects or anticipating directions in the digital arts and humanities. A total of eight interviews were conducted in person, including faculty and staff from the following sites and departments on campus: CSCL, Department of Art, Department of Art History, Department of Geography, Department of History, Department of Writing Studies, University of Minnesota Press, Department of Theatre Arts and Dance. We targeted individuals who were already active and oriented in the discussion as members of the Digital Humanities 2.0 collaborative. Accounting for summer availability, the working group developed an online survey with similar questions which was sent to the Digital Humanities 2.0 listserv, garnering 8 additional responses. The working group plans to continue interviews in fall 2012.

Participants in the interviews and survey expressed interest in a broad range of topics:

- Digital writing and digital storytelling issues
- Machine learning and computational linguistics
- Social media and narrative production
- Data mining of digital print
- GIS and digital humanities
- Digital music and ethnography

Many participants expressed keen interest in new forms of digital publishing. Additional conversations on campus have also revealed interest in crowdsourcing, image tagging and discovery, and visualizations of ancient rhetoric and archaeological sites.

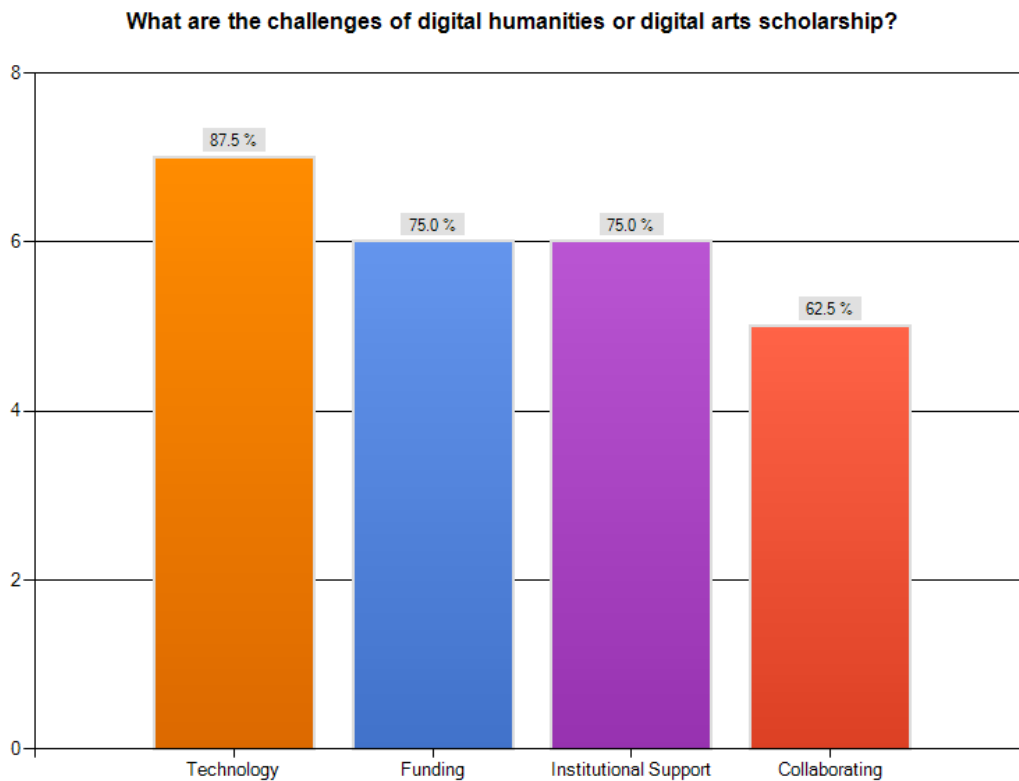
Overall, the questions touched on faculty perceptions of their role in the digital humanities, the role of their departments or other labs or service points on campus, how they conduct their work or projects, what support they are getting and what support they need, and the impact of DAH on teaching. Four key questions from the interviews and surveys are highlighted below to give a glimpse of what faculty are saying about the digital humanities environment on campus.

1. Do you consider yourself a digital humanities scholar?

The range of responses regarding self-perception as digital humanists suggests that this professional identity is emergent. Some are concerned the term is polarizing while others don't feel they have the technical skills needed to claim the title. Others embrace digital humanities as extending and revitalizing the work of humanists, understanding that the digital humanities engages questions of digital culture and is an opportunity to participate in a critique of the humanist/ethical impact of technologies. Technology, for some, is a means of scholarly inquiry, and for others, technology *is* the subject of scholarly inquiry.

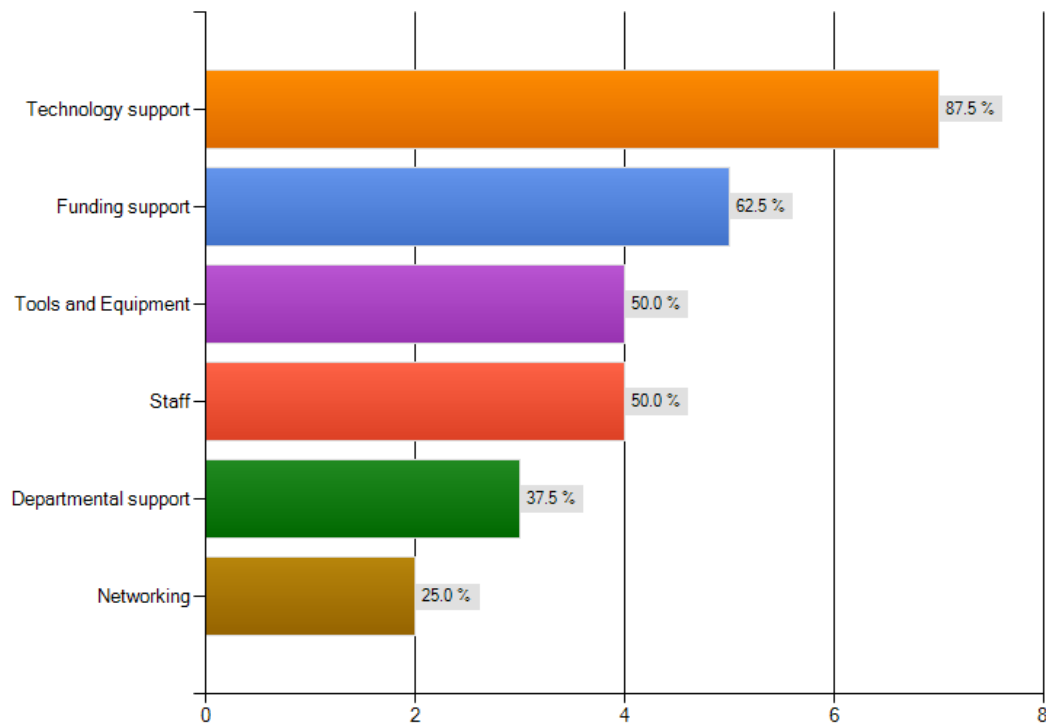
2. What are the challenges of digital arts and humanities?

In the context of one-on-one interviews, participants revealed that their greatest challenge has to do with deep networking and discovering colleagues with an interest in creative research that involves pushing boundaries with process, technology and inquiry. Given an online survey and multiple-choice options, respondents identified technology as the biggest challenge that they face. Other top challenges included funding and institutional support.



In response to a question about support needs, survey participants emphasized a need for help with technology. Funding, tool, and staff support also ranked high. On the survey, networking support was not selected as a strong need, perhaps indicating that existing networking opportunities are sufficient. Looking at interview discussions in a new light, it is possible that assistance with specific referrals to support services and to potential colleagues with a focused, shared interest may be of more benefit to faculty.

If you need help with digital humanities or digital arts scholarship, what kind of support do you need?



Asked where they currently receive support, interview and survey participants noted the assistance they receive from the Office of Information Technology and CLA-OIT. They also cited the University Libraries, SMART Commons, home departments, and external communities (open source communities, professional societies, digital humanities and computational linguist communities). In the interviews, several participants noted how difficult it can be to find assistance in this work given the size of the institution and distributed nature of support at the University of Minnesota.

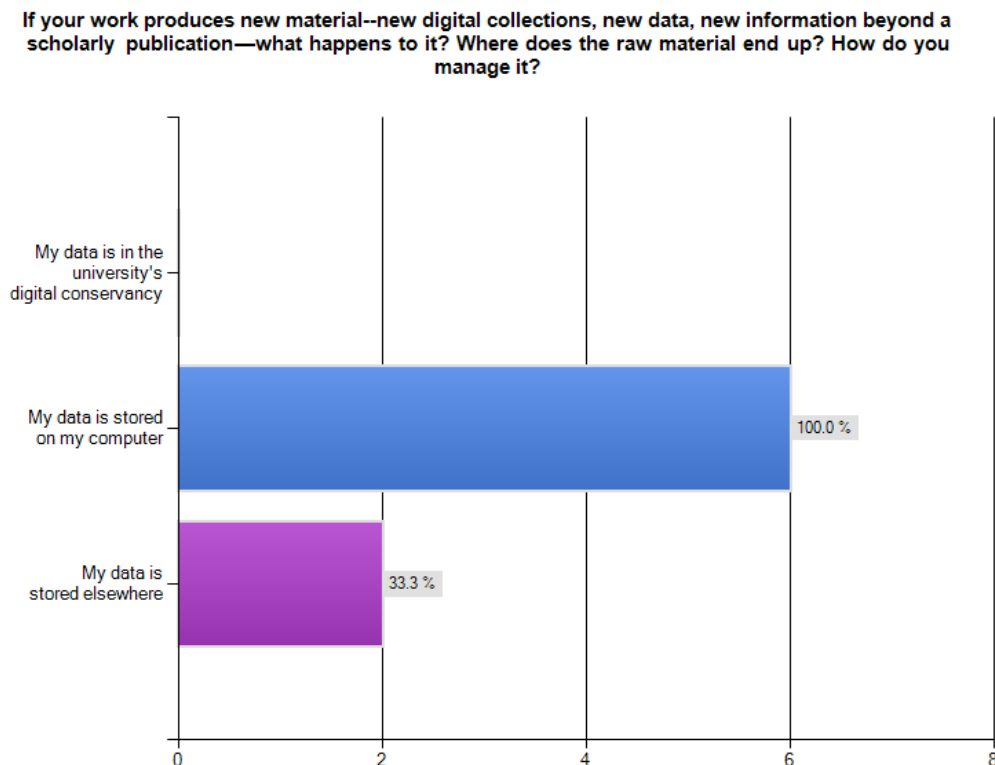
3. What role does digital arts or humanities content scholarship have in your teaching?

In the one-on-one interviews, it appears that DAH projects are not having a tremendous impact on teaching, although, the topic of how media shapes the way students think and learn is addressed with an emphasis on the value of visual literacy. The concerns raised around offering technologically oriented classes included the fact that students have differing levels of technological experience and knowledge. Students are developing digital artifacts as part of their class experience, changing a private in-class community to a much broader experience, which potentially has significant ramifications on teaching. Students are engaged in the same continuum of activity as faculty, both engaging the use of technology and exploring and reflecting on the impact of technology.

4. If your work produces new material--new digital collections, new data, new information beyond a scholarly publication—what happens to it? Where does the raw

material end up? How do you manage it?

While participants did not explicitly cite data curation as a need for work in DAH, the survey responses indicate a clear need for support in this area to better ensure long-term access to research materials.



Scholars clearly store their data on their own computers, and very few are taking advantage of external storage and preservation options, such as the University of Minnesota's Digital Conservancy.

In conjunction with the April 2012 CIC Digital Humanities Summit, Michael Hancher developed a list of digital humanities initiatives at the University of Minnesota (<http://blog.lib.umn.edu/mh/dh2/2012/05/digital-humanities-initiatives-at-the-university-of-minnestoa-twin-cities-may-2012.html>). This includes existing projects, networking and collaborative groups, and key support entities. Additional information on these initiatives is available on the Digital Humanities 2.0 blog (linked above) and on the websites of each listed group or project.

- **Digital Humanities 2.0**, *Institute for Advanced Study* (http://www.ias.umn.edu/collabs11-12/DH2_0.php)
- **The Ojibwe People's Dictionary**, *Department of American Indian Studies in collaboration with the University of Minnesota Libraries and the Minnesota Historical Society* (<http://ojibwe.lib.umn.edu>)

- **University of Minnesota Press** (<http://www.upress.umn.edu/>)
- **Charles Babbage Institute: Center for the History of Information Technology**, *College of Science and Engineering and University of Minnesota Libraries* (<http://www.cbi.umn.edu>)
- **GroupLens Research**, *College of Science and Engineering* (<http://www.grouplens.org>)
- **Minnesota Population Center** (<http://www.pop.umn.edu>)
- **U-Spatial** (<http://uspatial.umn.edu>)
- **Immigration History Research Center** (<http://ihrc.umn.edu/>)
- **Visualizing Ancient Greek Rhetoric**, *Interactive Visualization Lab* (http://ivlab.cs.umn.edu/project_virtclassics.php)
- **Digital Content Library**, *College of Liberal Arts and College of Design* (<http://dcl.umn.edu>)
- **Minnesota Digital Library** (<http://www.mndigital.org/about>)
- **Digital Conservancy**, *University of Minnesota Libraries* (<https://conservancy.umn.edu>)
- **Digital Arts and Humanities Working Group**, *University of Minnesota Libraries* (<http://blog.lib.umn.edu/dah>)
- **HathiTrust** (<http://www.hathitrust.org/about>)

Campus Infrastructure

Due to the disaggregated nature of services at Minnesota, it is difficult to uncover and track all available services and support programs. The environmental scan identified a range of significant depth of expertise and services that could be of use in the DAH context. For the purposes of this report, the general DAH service domains we explored include consultation services, digitization services, hosting/publishing platforms, media support services, textual/visual analysis services, GIS services, and visualization/simulation services. Resources listed below represent a few local service examples, a more comprehensive inventory can be found in Appendix B.

Potential DAH consultative support services were identified in multiple campus units. For example, there are centralized services such as OIT - Educational Technology Services that offer expertise that could be leveraged to help translate DAH technology-related research methodology into curriculum design for teaching. The Libraries likewise have a range of expertise and services to offer, such as copyright support and authors rights. The Libraries also offer publication platforms for preserving and disseminating digital publications (i.e., UMedia Archive, University Digital Conservancy). Finally, there are also collegiate level consultative services, such as the CLA-OIT Instructional Technology unit, which offers support for technology, media and curriculum design.

In the area of DAH digitization services, there are college specific digitizing services such as the Digital Content Library funded by CLA/CDES, specializing in media content digitization support. There are also fee or grant based central services, such as the Libraries' Digital Library Services

program. Finally, for smaller projects, there are limited do-it-yourself campus digitization resources available, such as scanners and limited legacy (i.e., VHS/LP era) audiovisual conversion equipment found in the SMART Learning Commons and scanners in the OIT Computing Labs.

The University offers a range of content hosting and publication platforms that may be of interest to DAH scholars. For example, there are enterprise storage solutions, such as OIT's service hosting and at the collegiate level, CLA-OIT backup and data-storage. There are also personal management storage solutions, such as Netfiles and Google Docs. In terms of publication platforms, the UMedia Archive preserves and disseminates user-generated media collections, the University Digital Conservancy functions as an institutional repository for University content, and Kaltura, the University's new streaming platform will soon begin to host and disseminate video replacing Media Mill. Finally, the Digital Content Library provides restricted campus access to digitized audiovisual materials used for instruction.

In our faculty member interviews, the topic of media content and production support was frequently discussed. The campus currently offers a range of disparate media support services at varying levels, from centralized Library Media Services specializing in a range of media collections related services and production support (currently student emphasis), to fee based services, such as OIT Video Solutions which offers professional videography for events and original production. There are also several college level media support services. For example, the Digital Content Library provides media content conversion and delivery support and CLA-OIT Video Services supports higher-end student video creation in the Rarig Studios. In addition, CEHD Academic Technology, also offers professional videography services and online tool development support geared towards instruction. There are also several media support services found at the department level. For example, the School of Journalism has the Digital Media Studio, the Art Department's has the eStudio and EMA Lab, and the School of Music maintains the Electronic Music Studio. Finally, there is a rich potential collaborative partner with the Learning Technologies LT Media Lab (Curriculum and Instruction Department program), that is equipped with its own production facilities, media professionals and a stated objective to collaborate with other researchers on larger scale online educational media projects.

Access to campus software and support services for textual and visual analysis is significantly limited. The CLA Language Center has licensed a few outdated copies of the Transana video transcription software, which reportedly has been used sparingly. Also, the Academic Technologies unit of CEHD developed the free, popular online video annotation tool, VideoAnt, currently undergoing redesign. With respect to text analysis, there is department-restricted access to NVivo in the Humphrey School of Public Affairs and Educational Psychology computer labs, but our scan found no centralized access to these tools.

The primary campus support for Geospatial Information Systems (GIS) is found in a the recently developed, USpatial program, a grant-funded program designed to provide "networked access to data, equipment, and expertise to benefit all researchers working with spatial science and

systems at the University of Minnesota.” Other campus related GIS services include those found in the Minnesota Population Center (noted for its “Terra Populus” global population/environmental data network) and the John R. Borchert Map Library, which provides a range of geographic services including limited ARC GIS software support. Centralized access to ARC GIS software can also be found in the OIT Computer Labs, on the Wilson Library general use computers, and in the SMART Learning Commons. Note: Technical support for ARC GIS is not offered in the Libraries nor the OIT Computing Labs.

Though textual/visual analysis software access is lacking, there are a number of campus-wide, college- and department-based computational, visualization and simulation services available that could be of value to DAH scholarship. The major player on campus in the areas of computational, visualization and simulation services, is the Minnesota Supercomputing Institute (MSI), administrated by the Office of the Vice Provost for Research (OVPR). The MSI sponsors several labs and offers an array of services such as project consulting, computational servers, workstations, dedicated data storage, software program development, visualization tools and technical support. An example of MSI’s simulation service is the “Biomedical, Simulation, and Design Laboratory”, designed to provide researchers’ access to computing and technical support for computation and visualization. The MSI-LCSE Visualization Laboratory (co-sponsored by the Laboratory for Computational Science & Engineering) in Walter Library, provides access to a large screen (“Powerwall”) visualization service, which is also used for 3D stereo and motion tracking. Finally, at the departmental level, the Interactive Visualization Lab (“ivLab”) administered by the Department of Computer Science, supports services for data visualization, computer graphics, and human interaction. The ivLab may be particularly appealing to the DAH movement, because they are already engaged in several grant funded initiatives where “arts meets science” through data, computer and modeling visualization (“Adding Dimensions to Art”). Also at the department level, the Mechanical Engineering Visualization Lab, offers access to 3D computing and media software. Finally, the CLA-OIT Lab offers some computational software access (i.e., e-Prime Psychology data analysis tools) and other services where people can receive computer assisted research support.

Service Needs

In order to develop recommendations for future activities, the working group brought together findings from the investigation of local user needs and knowledge of common service needs in the discipline. The local scan, in particular, pointed to a number of service needs that can provide a direction of work for the next 1-2 years.

Many of the comments during faculty interviews and on the survey submitted to the Digital Humanities 2.0 listserv centered identified a need for a clearer path to assistance and support in digital humanities. Related to this, substantive opportunities for developing partnerships (particularly with those outside one’s primary discipline) and for garnering institutional backing

are of keen interest to emerging digital humanities scholars at the University of Minnesota. Institutional backing encompasses several different types of support: funding, acknowledgement of the value of digital humanities scholarship, technological infrastructure and related technology training, content access, and copyright and process guidance.

The working group discussed at length the strengths of university entities to support these expressed needs. The Libraries and OIT have many strengths that address the need for connection, partnership-building, and service referral. Both organizations are well-connected to the larger organization. In his talk, Dan Cohen noted that libraries are particularly neutral (i.e., discipline-independent) institutions that can work across the university and may be particularly well-situated to support digital humanities research and scholarship; on this campus, central OIT has a similar neutral status. As needed, the libraries can provide central space for collaborative work.

Adding to the connector role, the Libraries and OIT are highly service-oriented and collegial. Both entities have a wealth of expertise in training and instructor support, which will help to meet scholar training needs in technology, metadata, copyright, and data management. Looking beyond training, the Libraries and OIT have many services and tools to meet some of the existing demand for technology infrastructure and content support. Services and departments such as the University Digital Conservancy (UDC), UMedia Archive, Media Mill, Digital Content Library, Digital Library Services, SMART Commons, and Tech Stop can provide infrastructure and related support for data-intensive humanities work (thinking of “data” in the broader sense) and alternate publishing options. Another infrastructure element--content support--can be addressed through library relationships with content vendors, API access to collections, CIC partnerships, and the relationship with Hathi Trust and the Hathi Trust Research Center.

It is important to acknowledge the wealth of technology support available elsewhere on campus. The USpatial initiative and Minnesota Population Center, for instance, provide significant expertise with GIS data and related analysis, which are critical elements for supporting GIS-intensive digital humanities work. Similarly, visualization-oriented digital humanities work may be supported through partnering with one of several large-scale visualization labs on campus. The University of Minnesota Press and members of the Department of Writing Studies are experimenting with alternate publishing models, and their knowledge and pilot projects may help to inform future work in this area. The Institute of Advanced Studies has years of practice with supporting interdisciplinary and digital scholarly projects with faculty, and the IAS/UMN Press Quadrant project has begun experimentation with alternative forms of publication, but have left the question of data curation and living/long term digital scholarship projects relatively unexplored.

There are areas that need additional focus to build sufficient support for scholars in digital arts and digital humanities. Services to support this work are highly decentralized on the University of Minnesota campus. For effective and efficient research, these disparate services need to be brought together--whether through a central organizing body or through an established network

of distributed support. The existing technology expertise on campus is noted above, but there is limited experience within the University Libraries and OIT in bringing that expertise to bear to support the full lifecycle of digital arts and humanities research. For effective assistance, it is important to gain practice-based expertise in DAH analysis, project planning, and technology support. The UDC and other systems offer potential underpinnings for DAH data curation and publishing support; however, further investigation is required to determine the existing capacity, infrastructure gaps, and recommendations for robust humanities data support.

The following recommendations reflect the strengths of organizations on campus the most pressing support needs of emerging digital arts and digital humanities scholars at the University of Minnesota.

Recommendations for Building Digital Arts and Humanities Support

This is an auspicious time for the University of Minnesota Libraries to be engaged in Digital Arts and Humanities. As a field, DAH is changing and growing at an amazing pace and is the site of some of the most interesting and challenging projects in the world of libraries. The University of Minnesota Libraries have the opportunity to contribute to this work by aligning with campus efforts such as the Institute for Advanced Studies (IAS) and UMN Press, as well as other institutions that may serve as key partners, such as the CIC libraries invested in digital humanities work. Together, we could challenge boundaries of collaboration across campus and institutions and strengthen existing infrastructure to meet the growing needs of data curation, preservation, and discovery.

Further, the University of Minnesota Libraries is well positioned to take on this work in exciting and ambitious ways, having already engaged in digital scholarship assessment (A Multi-Dimensional Framework for Academic Support; Sciences Assessment), as well as the development and building of interdisciplinary web environments for research and scholarship such as EthicShare, the Ojibwe People's Dictionary, and Harvest Choice. Our work in digital scholarship and digital arts and humanities builds on these successful past efforts.

To this end, our recommendations center around opportunities for developing local partnerships and a local DAH community, as well as multi-institution collaborations. Further, our recommendations are offered in terms of near- and longer-term possibilities. We have narrowed a large field of possibilities down to recommendations that leverage the skills, interests, and abilities of the University Libraries and OIT, so as to build on existing strengths, offer feasible next steps, and encourage work in the area of digital arts and humanities that will move scholars forward in their current and future projects.

To that end, we recommend that the structure of the DAH group change as needed to accommodate focused work and exploration in particular areas. This may mean new members,

different collaborative work practices, a commitment to communication, and a clear reporting schedule.

Near-term Recommendations:

DAH Support Partnerships

- In order to simplify pathways to support, identify potential partners and current support entities for digital scholarship, both on campus and in the region. Logical partners include CLA-OIT, OIT, Institute for Advanced Studies, UMN Press, Macalester, St. Olaf, and Carleton Colleges, and CIC libraries.
- Host a tech/media/publishing summit to identify where DAH and new media creation is supported, bringing together the creation/infrastructure players; partner with OIT and CLA. This is envisioned as a kick-off event to discuss what we have done, what it would take to move the campus forward on digital scholarship, and how to more effectively support digital scholars.

Community Development

- Communicate with Digital Humanities 2.0 Collaborative leaders to coordinate workshops and support for the coming year.
- To gain additional understanding of local support needs and gauge the value of proposed initiatives, invite a DAH graduate student or faculty member to join the DAH working group.
- Host or co-host a Tech Showcase or panel of example DAH projects and support services in order to spark ideas around potential projects, raise awareness of local projects and services, provide opportunities for methodological and logistical conversations about DAH research, and help scholars find collaborators outside their home disciplines.

DAH Infrastructure

- Hire a Digital Arts and Humanities librarian (minimum 50% FTE) in the next 12 months in order to continue momentum on campus and in the University Libraries to advance and support DAH. This role is critical for proactive outreach on campus and for providing a logical initial point of contact for program planning and referral. In addition, the year's work has provided additional information about the skill set needed for successful DAH support.
- In order to address scholar needs for open and long-term access to humanities data, work more closely with the Data Management, Access, and Archiving Working Group (DAWG) and other partners (such as OIT, the Institute for Advanced Studies, and UMN

Press) to further explore and plan infrastructure and services for data curation, publishing, and preservation within the Libraries, the University of Minnesota, and the CIC. This should begin with exploring existing work (such as the UDC, UMedia Archives, Archives and Special Collections born digital curation plans) and identify possible points of collaboration for infrastructure (servers, repositories) that don't necessarily need to be maintained or controlled by the University of Minnesota. This includes looking to national initiatives and regional consortia.

- Develop a proposal for a grant-funded project to support faculty seed projects, in order to explore data curation and access issues in DAH, deepen campus expertise with DAH, and develop project workflows. This will facilitate opportunities to bring new areas of research on campus to fruition, build knowledge of faculty, the University Libraries, and campus partners about the logistical support needs for DAH work, and advance efforts to develop best practices in the areas of data curation, data access and reuse, and preservation that will benefit the larger digital humanities community.
 - Deepen research relationships on campus
 - Use extant infrastructure to curate, preserve, and make accessible data from faculty research across the disciplines
 - Make recommendations of infrastructure development needed for ingest, preservation, and access of data in multiple formats
 - Work with faculty projects to develop project workflows and research data plan
 - Investigate how to address differing levels of data openness, privacy concerns, and other restrictions that may be at issue.
- Given the campus interest in new modes of publication and dissemination of research in DAH, work with the incoming Associate University Librarian for Content and Collections to make DAH collections, content, and publishing a priority area.
- Responding to faculty feedback about the dispersed nature of research support on campus, develop a DAH or Digital Scholarship brand to clarify and promote support services for research in these areas.
 - Work with the University Libraries Communications Officer on branding concepts and strategies.
 - Identify existing identities, projects, resources, and people who could be characterized as working in the field of digital arts and humanities.

Longer Term Efforts

DAH Support Partnerships

- Build on earlier investigations of existing campus support and early DAH summits to clarify support paths through partnership arrangements or develop a formalized DAH support team with members drawn from the Libraries, OIT, IAS, and other logical partners. Accordingly, develop a visible model for integrated support delivered to the

colleges.

- As DAH scholarship develops on campus, continue to coordinate support centers already in existence and plan for new ones together.

DAH Infrastructure

- A core strength of the Libraries in supporting DAH work is content acquisition, licensing, and vendor relationships. The Libraries should pursue licensing conditions that allow text mining in order to support DAH work employing this practice.
- Library collections are intrinsically tied to the research and teaching missions of the university, and this emerging area of research indicates additional collections focus on corpora, data sets, and other sources. The Libraries should begin to use the collections budget to build access to source materials for DAH projects.
- To provide deeper access to collections and facilitate data sharing for DAH scholars locally and externally, build APIs for local collections and consortial collections.

Education and Networking

- To further support the growth of a local DAH community, host a seminar series (virtual or in-person) in partnership with the Digital Humanities 2.0 group
- To build knowledge of DAH methodologies and address common logistical issues, create a structured, ongoing set of workshops specifically branded as supporting DAH and digital scholarship. Potential topics include:
 - Open data (how open, why not open?)
 - Copyright
 - Data curation planning
 - Multimedia in DAH
 - Alternative publication forms and formats
 - Metadata and encoding standards and practices
 - Digitization practices

Consultative Services

- To facilitate the unique needs of DAH projects, develop a linked and branded DAH consultative service addressing the following areas through direct service and partner referrals:
 - Project management
 - Data curation planning
 - Publishing platforms
 - Grants

- Metadata
- Copyright
- To anticipate questions and provide initial guidance, develop digital tools and guides to support DAH scholars
 - Create a website drawing together support information and services
 - Create visible support paths through infographics and other guides.
 - Articulate best practices in digital scholarship
 - Create a DAH workflow guide (building on work in process in OIT)

Community Growth and Research Expertise

- Building on the success of the OIT Faculty Fellows and Educational Technology Workshop programs, develop a Digital Teaching and Workshop program to incorporate DAH into teaching practice and curricula. This is an incubator approach to changing practice and will develop cohorts of leaders in digital teaching.

Space

- It is unclear at this time whether scholars need a defined DAH collaborative space (virtual or physical). There are multiple DH Centers that incorporate spaces to support DAH work, and they are reported to particularly support graduate student scholars. This option is worth exploring as a future support initiative. Existing model spaces emphasize technology, software, technology support, and meeting/group space.
 - Consider beginning with virtual space, and partner with the Digital Humanities 2.0 collaborative to develop a support clearinghouse of existing resources.
 - Further investigate what scholars need in a physical space through surveys and interviews.
 - Consider available/existing options, such as Blegen Tech Stop or repurposing SMART spaces.
 - Work with likely partners, such as the Provost or the Office of the Vice President of Research (OVPR) to develop graduate student space.

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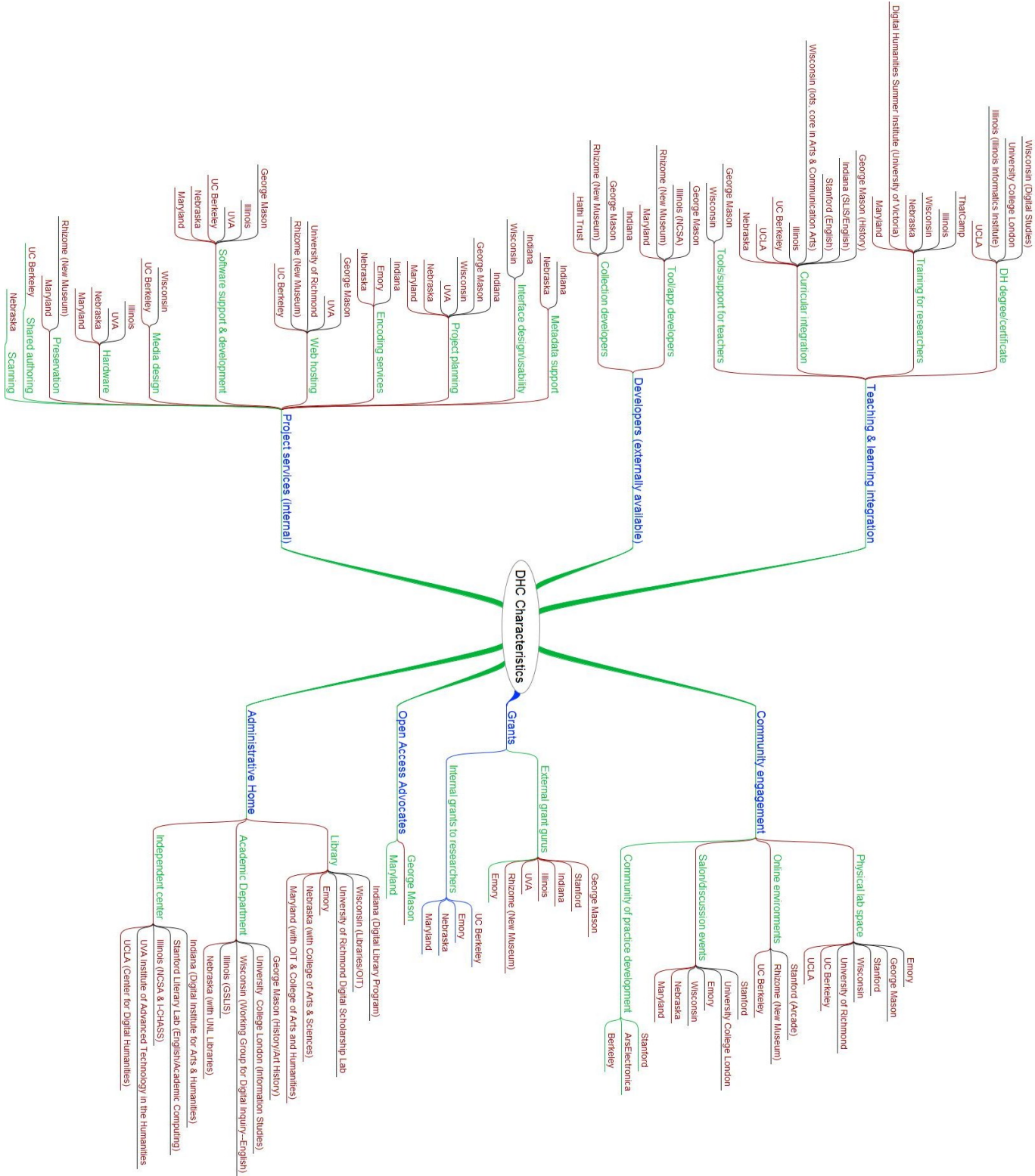
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Appendix A: Digital Humanities Centers Characteristics



Appendix B: Campus Digital Arts and Humanities Infrastructure and Services

Consultation Services

AHC Learning Commons - course management, media production and distribution, social media. Fee based services: <http://learningcommons.umn.edu/portfolio/video/>

CEHD Instructor Support Services - professional media production services, consultation to support CEHD instruction:

<http://www.cehd.umn.edu/academics/technology/Services/default.html>

OIT Educational Technology Services (ETS): <http://www.oit.umn.edu/consultation-services/>

OIT Video Solutions - AV event-professional video production services:

<http://www.oit.umn.edu/video-production/>

College of Design, Digital Collections and Archives - media scanning open to students, staff, and faculty: http://design.umn.edu/current_students/leo/dca/

New role in CLA-OIT Tech Admin - comes out of traditional tech support to be more consultative, find out need, aware of all services offered across institution:

<http://claoit.umn.edu/computing/techadmin.php>

CLA-OIT Instructional Technology Support - course mgmt, media production and distribution, social media services: <http://claoit.umn.edu/instructional/>

Library Media Services (SMART Learning Commons partner) - campus wide consultation on student produced media, course integrated media resources, and general media use for teaching, learning, research and scholarship: <http://lib.umn.edu/media>

LT Media Lab, Learning Technologies program of Curriculum and Instruction (CEHD) - operates as both a degree granting program and a co-developer for a range of digital media educational projects. Specializes in Geography k-12 education with technology exemplified by the [GoNorth!](#) and [GeoThentic](#) projects. LT has its own videographer, programmers, developers, designers, and servers. Open to partnering with multiple internal and/or external constituencies on projects: <http://lt.umn.edu/projects>

Interactive Visualization Lab (iVLab) (2-203 & 6-190 Keller): Administrated by the Dept. of Computer Science: "Our research involves data visualization, computer graphics, and human-computer interaction." Partners with the [Graphics Group in the DTC](#): Current projects in the iVLab include collaborators in evolutionary biology, orthopedic biomechanics, medical device design, computational fluid dynamics, visual art, illustration, and other fields: <http://ivlab.cs.umn.edu/index.php>

MSI Primarily scientific and technical: HPC computing, image processing, visualization, proteomics, genomics, statistics, data mining, bioinformatics, and more:

<https://www.msi.umn.edu/content/change-external-consulting-fee-schedule>

Digitization Services

Things to consider about scanners

<http://www.oit.umn.edu/document-imaging/scanners/index.htm>

Media Mill

<http://mediamill.cla.umn.edu/mediamill/>

Digital Library Services

<http://digital.lib.umn.edu/index.phtml>

Digital Content Library (DCL)

<http://dcl.umn.edu/staticContent/about>

College of Design, Digital Collections and Archives - media scanning service, co-sponsor of the DCL: http://design.umn.edu/current_students/leo/dca/

Library Media Services (SMART Learning Commons): <http://lib.umn.edu/media>

School of Music: Electronic Music Studio - offers limited legacy audio conversion service. Fee based: <https://music.umn.edu/about/facilities/ferguson#electronic>

OIT Computing Labs - scanners, computers, some specialized software and general use support: <http://www.oit.umn.edu/computer-labs/hardware/index.htm>

Hosting/Publishing Services

UMedia Archive: <http://umedia.lib.umn.edu/>

University Digital Conservancy (UDC): <https://dcl.umn.edu/>

Server hosting: <http://www.oit.umn.edu/hosting/index.htm>

Personal website hosting: <http://www1.umn.edu/adcs/help/webpage.html>

Media Mill - streaming video service platform. New platform, Kaltura, set to replace Media Mill soon: <http://mediamill.cla.umn.edu/mediam>

Digital Content Library: <http://dcl.umn.edu/staticContent/about>

CLA-OIT back-up and data storage:

<http://claoit.umn.edu/computing/basicstorage.php#local>

<http://claoit.umn.edu/research/backup.php>

CLA-OIT terminal servers: <http://claoit.umn.edu/computing/terminalservers.php>

Netfiles: <https://netfiles.umn.edu/>

Google Drive (aka Docs/Apps): <http://www.oit.umn.edu/index.php>

iTunes U: <http://www.oit.umn.edu/itunesu/what/>

Media Support

CLA-OIT Web, Video & Digital Media: <http://claoit.umn.edu/web/>

CLA Language Center - production workstations, limited production software-support, equipment: <https://languagecenter.cla.umn.edu/cme.php>

Digital Media Studio (School of Journalism): <http://dms.sjmc.umn.edu/access/>

Library Media Services (SMART Learning Commons partner): <http://lib.umn.edu/media>

OIT Video Services: <http://www.oit.umn.edu/video-production/>

OIT Computer Labs/Blegen Tech Stop; production workstations, limited production software-support, equipment: <http://www.oit.umn.edu/computer-labs/software/index.htm>

eStudio and EMA labs (Art Department) - supports the experimental and media arts program. (webpage not currently functional):

<https://art.umn.edu/about/techFacilities.php>

School of Music: Electronic Music Studio, supporting primarily audio production in the music program: <https://music.umn.edu/about/facilities/ferguson#electronic>

Rachel Ramist Lab (466 Ford Hall) - Gender, Women Studies Dept. sponsored multimedia computer training and open lab for students, staff and faculty in the Dept:
<http://gwss.umn.edu/resources/media.html>

34 Carlson - Room owned by CSOM with chromakey screen and specialized lighting room that can be rented for video production or used for videoconferencing. CSOM also has video equipment available for rental as well as professional staff time that can assist in video capture, contact: Michael Teachout.

Textual Analysis & Visual Analysis Services

CLA Language Center <https://languagecenter.cla.umn.edu/cme.php>

NVivo

(Humphrey): <https://sites.google.com/a/umn.edu/hhhits/facilities>

(Ed Psych): <http://www.cehd.umn.edu/edpsych/FutureStudents/facilities.html>

VideoAnt - free online video annotation software developed by CEHD, currently being redesigned:
<http://ant.umn.edu>

GIS Services

Uspatial: <http://uspatial.umn.edu/>

Map Library: <http://map.lib.umn.edu/>

Minnesota Population Center (Terra Pop): www.pop.umn.edu/

Arc GIS programs found in computer labs: Coffey Hall 50, CMU B060, HHH 50, Magrath Lib 50, Learning and Environmental Sciences 220/230, Walter 103, Walter/Wilson SMART Learning Commons & Wilson Library general use computers.

CLA-OIT GeoWall: 3D geospatial visualization (does not appear to be in operation):
<http://www.geog.umn.edu/geowall/presentations.html>

LT Media Lab, Learning Technologies program under Curriculum and Instruction (CEHD) that operates as both a degree granting program and a co-developer for digital media projects dealing with education and GIS. LT has its own videographer, programmers, developers, designers, and servers. Open to partnering with multiple internal/external constituencies.
<http://lt.umn.edu/projects>

Visualization/Simulation

CLA-OIT Lab (E-prime, and other simulation program) Research lab where people can do computer assisted research. Sometimes used by CSOM.

CLA-OIT GeoWall: 3D geospatial visualization (does not appear to be in operation):
<http://www.geog.umn.edu/geowall/presentations.html>

eStudio and EMA labs (Art Department) - supports the experimental and media arts program. (webpage not currently functional):
<https://art.umn.edu/about/techFacilities.php>

LCSE-MSI Visualization Laboratory (125 Walter): This laboratory provides researchers with access to a large screen visualization system ("PowerWall"). The system can be used in high-resolution mode to display detailed visualizations. The system can also be used as an immersive visualization system using active 3D stereo and motion tracking. LCSE is a unit of CSE's Digital Technology Center, head by Paul Woodward: <https://www.msi.umn.edu/labs/lmvl>

MSI Basic Sciences Computing Lab (1-280 Hasselmo): This laboratory provides researchers with access to a unique mixture of computational servers, workstations, visualization tools, software and technical support. The Basic Science Computing Laboratory (BSCL) houses workstations with active stereo systems and a stereo projection system. This lab is used by a wide array of users including engineering, finance, and life science researchers:
<https://www.msi.umn.edu/labs/bscl>

MSI Biomedical Modeling, Simulation, and Design Laboratory (rm. 414 717 Delaware Building): provides University researchers with access to workstations, software, and technical support for scientific computation and visualization: <https://www.msi.umn.edu/labs/bmsdl>

MSI Scientific Development and Visualization Laboratory (575 & 585 Walter): “Since supercomputing is increasingly concerned with large, complex data sets that require application of sophisticated multidimensional visualization strategies, a central function of the SDVL is to maintain an environment where researchers can interactively visualize their supercomputer-generated data in the most up-to-date manner. This lab provides Institute researchers with access to Linux, Windows, and Mac workstations, hardware and software for the production of videos, and associated software and technical support”:

<https://www.msi.umn.edu/labs/sdvl>

3D Visualization Lab: operated by CSE’s DTC (first floor Walter) provides 3D immersive environment - head by Lance Phillips (phillips@cs.umn.edu)

Interactive Visualization Lab (iVLab) (2-203 & 6-190 Keller): Administrated by the Dept. of Computer Science: “Our research involves data visualization, computer graphics, and human-computer interaction.” The iVLab is already doing work merging art and science:

<http://ivlab.cs.umn.edu/index.php>

[Mechanical] Engineering Visualization Lab - media, 3D modeling computing software

<http://www.me.umn.edu/labs/visualization/>

Miscellaneous DAH Infrastructure of Interest

Link to software available on lab computers

<http://www.oit.umn.edu/computer-labs/software/index.htm>

Link to hardware

<http://www.oit.umn.edu/computer-labs/hardware/index.htm>

Link to locations (but doesn’t tell who can use it)

<http://www.oit.umn.edu/computer-labs/locations-hours/index.htm>

A-Z list of OIT services

<http://www.oit.umn.edu/services-systems/index.htm>

List of Courses

<http://uttc.umn.edu/training/courses/index.jsp>

CLA-OIT Programming and databases

<http://claoit.umn.edu/programming/>